TITLE: METHOD AND MEANS FOR ADVANCING A SAUSAGE CASING USING FLUID POWER

BACKGROUND OF THE INVENTION

Sausages have been traditionally made by filling the natural intestines of sheep or other animals, with a sausage product whereupon the filled natural casing was formed into links for cooking. In more modern times, sausages are predominantly made by introducing an emulsion into an artificial casing, which encases the sausage material through linking and preliminary cooking. Machines for making sausages with artificial casings have a high volume capability (up to 30,000 sausages per hour). Efforts have been made to use these high-speed machines with natural casings including their relatively shorter and variable length and non-uniform diameter, modern sausage encasing machines have not achieved the volume and capacity with natural casings as they do with artificial casings.

It is therefore a principal object of the invention to provide a method of advancing a sausage casing that improves upon the state of the art.

A further object of this invention is to use water in the stuffing tube in order to facilitate the movement of the sausage casing.

A still further object of this invention is to use pressurized fluids in the advancement of a casing along a stuffing tube.

These and other objects will be apparent to those skilled in the art.

BRIEF SUMMARY OF THE INVENTION

A stuffing tube for a meat encasing machine that has an elongated hollow tube that is adapted to receive meat emulsion and discharge the emulsion. The tube is cylindrical and has a plurality of spaced openings that create passageways from the hollow interior of the tube to the outside of the tube. A fluid source is then connected to the interior of the tube and water passes through its interior and through the openings to lubricate the outside of the hollow tube to facilitate the sliding movement of a tubular casing.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a plan view of a sausage making machine showing the conventional components.

Fig. 2 is a plan view of a sausage making machine showing conventional components as modified by this invention;

Fig. 3 is a sectional view of the interior of the hollow stuffing tube viewed in direction line 3-3 of Fig. 2;

Fig. 4 is a plan view of nozzle manifold used to assist the moving of the sausage casing; and

Fig. 4A is a front view of the manifold of Fig. 4 looked at with respect to lines 4A in Fig. 4.

DESCRIPTION OF THE EMBODIMENTS OF THE INVENTION

The term "emulsion" as used herein includes meat or any other edible substance.

With reference to Fig. 1, a conventional sausage making machine 10 has a frame 11, a pump 12 connected to a source of emulsion (not shown), and a slidable stuffing tube 14 that has a discharge end 14A (Fig. 2). The sausage making machine

10 further has a twisting mechanism 16, a linking mechanism 18, a discharge horn 20, and a conveyor 22.

Fig. 2 shows part of a sausage making machine 10 that additionally has a stuffing block 23, a fitting 24, a cylinder 26 attached to the tube with a yoke 28, and a water source 30. Fig. 3 shows a detailed sectional view of the stuffing tube 14. The stuffing tube has a hollow inner diameter 14D disposed through its center and an opened circular chamber 14B within the stuffing tube 14. The chamber 14B is fluidly connected to the outside of the stuffing tube 14 via a series of holes 14C. This chamber 14B and the holes 14C allow water to be pumped into the hollow tube 14 and onto the exterior surface of the hollow tube 14. The hollow interior 14D can also be seen in Fig. 2. In a preferred embodiment, the holes 14C decrease in size as they near the end of the stuffing tube 14.

In operation when a sausage casing 32 is on the outer surface of the stuffing tube 14, water is pumped into the chamber 14B via a water source 30 connected to a fitting 24 located at the opposite end of the exit end of the stuffing tube 14. The extension and retraction of the stuffing tube 14 is accomplished by a cylinder 26 attached to the tube with a yoke 28. The tube is rotated using a standard linking machining rotator and the rotator bracket 34 on the stuffing tube 14. Meat emulsion is pumped into the inner diameter of the tube 14D via a stuffing block 23 attached to a metering pump. Casing 32 is slid over the exterior of tube 14 and fed into the twisting mechanism 16. The flow of water through the holes 14C assists the casing to easily slide off the tube 14 and through the twisting mechanism 16 as the twisting mechanism 16 and linker draw the casing 32 off the tube.

Fig. 4 shows another embodiment of the present invention. As shown, a stuffing tube 14 still has a casing 32 on its outer surface. Located exterior of the stuffing tube 14 is a nozzle manifold 36 that is connected to a fluid source 38. In operation, the stuffing tube 14 with casing 32 feeds the twisting mechanism 16. Like the hollow stuffing tube 14, the manifold 36 has several openings spaced apart from one another as can be best seen in Fig. 4A. The casing 32 is assisted in its motion off the end of tube 14 and into the twisting mechanism 16 by jets of water from the openings of nozzle manifold 36. The manifold 36 is fluidly connected to a fluid source 38 so that jets of fluid may be projected against the casing 32 and facilitates the pushing of the casing 32 longitudinally away from the nozzle manifold 36. The jets of fluid may be in a steady stream or in a controlled pulse. It should be appreciated that any type of fluid, including water or air may be used by the nozzle manifold 36.

Therefore, a sausage encasing machine that uses fluid sources to facilitate the movement of the sausage casings has been disclosed. It will be appreciated by those skilled in the art that other various modifications could be made to the device without the parting from the spirit in scope of this invention. All such modifications and changes fall within the scope of the claims and are intended to be covered thereby.